Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Developing a Unified Intercarrier Compensation Regime	)	CC Docket No. 01-92
	)	

Comments of Global Crossing Ltd.

Paul Kouroupas
Senior Counsel
Worldwide Regulatory and Industry Affairs
Global Crossing Ltd.
7 Giralda Farms
Madison, New Jersey 07940
(973) 410-8593

Dated: August 21, 2001

Executive Summary

Global Crossing is encouraged that the Commission is willing to address the issue of intercarrier compensation in a comprehensive manner. The Notice of Proposed Rulemaking ("NPRM") and associated "white papers" certainly put forth challenging ideas worthy of serious consideration. Intercarrier compensation is a critical issue facing the telecommunications industry because intercarrier compensation arrangements define a carrier's cost structure.

The Commission suggests two fundamental principals that are critical to establishing a fair and sustainable intercarrier compensation regime. First is that each call has a mutual benefit to the calling and the called party. Second, the costs of interconnection associated with that call should be shared equally between the carriers involved. If the Commission accepts these two propositions then it is indeed time to establish a unified intercarrier compensation regime that embraces these principles. Such a regime is necessary because these principles transcend industry segments and apply equally to all forms of traffic.

However, the Commission must not only conclude that "a minute is a minute." It must also conclude that "a packet is a packet." Moreover, the Commission must allow all packets to be exchanged without the distortion of past regulatory policies. As explained in greater detail below, Global Crossing is therefore advocating that the Commission:

- Affirmatively declare carriers' rights to route packetized voice traffic through existing and future, private and public, peering and transit arrangements.

- Prohibit any carrier from refusing to accept packetized voice traffic through existing and future, private and public, peering and transit arrangements.
- Allow carriers to negotiate the termination of packetized voice traffic through peering and transit arrangements without regard to the traditional access charge and reciprocal compensation regimes.
- Prohibit carriers from imposing usage-sensitive charges unless mutually agreed to by the parties.

By freeing the carriers from past regulatory constraints and allowing them to utilize existing and future peering arrangements, the Commission can facilitate the fair negotiation of intercarrier compensation arrangements suitable to the modern era of telecommunications.

TABLE OF CONTENTS

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Developing a Unified Intercarrier Compensation Regime	)	CC Docket No. 01-92
	)	

Comments of Global Crossing Ltd.

Global Crossing Ltd., on behalf of its affiliates, together whom offer local, long distance, and international voice and data telecommunications services and are collectively referred to as "Global Crossing", respectfully submits its comments in the above-referenced proceeding.

I. About Global Crossing

Global Crossing provides telecommunications solutions over the world's first integrated global IP-based network, consisting of seven undersea digital fiber optic cable systems and terrestrial networks spanning over 100,000 route miles, reaching 27 countries and more than 200 major cities. Global Crossing serves many of the world's largest carriers, corporations and organizations, providing a full range of managed data and voice products and services. Global Crossing operates throughout the Americas, Europe and the Asia/Pacific region, and provides services in Asia through its subsidiary, Asia Global Crossing. Unlike other carriers whose networks were designed for voice services and then upgraded for data and IP services, Global Crossing's entire system has been designed to handle high capacities of voice and data transmissions. The network is constructed with the latest dense wavelength division multiplexing (DWDM) technology, allowing for easy expandability. Self-healing ring structures, erbium-doped fiber

amplifier repeaters and the use of redundant capacity ensure outstanding reliability and service.

Global Crossing offers a full array of wholesale and retail telecommunications services including local, long distance, and international voice services, toll-free and calling card services, ATM, Frame Relay and IP data services, as well as a full array of capacity and bandwidth services. As a Tier 1 backbone provider, Global Crossing provides critical infrastructure support to the Internet in the United States and around the world. Global Crossing has established private peering arrangements with over twenty Internet backbone providers in the United States and participates in public peering arrangements as well in the United States and around the world.

Given its extensive involvement in the domestic and international telecommunications markets, both voice and data, Global Crossing is uniquely positioned to comment on intercarrier compensation arrangements.

II. Introduction

Global Crossing is encouraged that the Commission is willing to address the issue of intercarrier compensation in a comprehensive manner. The Notice of Proposed Rulemaking ("NPRM") and associated "white papers" certainly put forth challenging ideas worthy of serious consideration. Intercarrier compensation is a critical issue facing the telecommunications industry because intercarrier compensation arrangements define a carrier's cost structure. Individual carriers can establish and control their own on-net cost structure, but their cost structure rapidly deteriorates when forced to deal with dominant carriers for their off-net requirements including termination.[1] It is imperative

[1] This phenomenon is illustrated most vividly in the long distance industry where fully 40% of the costs of a 3,000-mile call could be incurred in the two miles associated with local origination and termination.

therefore for the Commission to establish in this proceeding rules which (1) will allow carriers to better manage and control their cost structure, (2) will facilitate continued progress towards fully competitive telecommunications markets, and (3) will support continued deployment of broadband technologies by a host of competing carriers.

The Commission suggests two fundamental principals that are critical to establishing a fair and sustainable intercarrier compensation regime. First is that each call has a mutual benefit to the calling and the called party.[2] This conclusion is particularly welcome and eminently logical. Certainly the marketplace has already embraced this notion. In the wireless arena, end users have made the clearest indication of this assumption by their willingness to pay to both send and receive calls. In the Internet arena, the demand for broadband is driven by consumer interest in receiving feature-rich content in a timely manner. Similarly, traditional wireline telephone customers expect that they can both send and receive calls from their telephones and the price paid for their local loop is a reflection of this.

Of course, if one accepts that there is a mutual benefit to each call, then one must further conclude, as the Commission tentatively has, that the costs of interconnection associated with that call should be shared equally between the carriers involved. This principle has also been accepted in the marketplace. For decades adjacent, non-competing local exchange carriers ("LECs") shared the costs of interconnection in the form of meet-point billing arrangements and "bill and keep" arrangements. These arrangements are not dissimilar from peering arrangements between Internet backbone providers and traditional arrangements for the exchange of international traffic. Under each of these regimes generally, carriers established a minimum number of

interconnection points and each bore the responsibility for extending its network to the interconnection point.

If the Commission accepts these two propositions – that there is a mutual benefit to each call and that the interconnection costs are to be shared – then it is indeed time to establish a unified intercarrier compensation regime that embraces these principles. Such a regime is necessary because these principles transcend industry segments and apply equally to all forms of traffic.

Having said that, the Commission's analysis does suffer from one fatal flaw: it is predicated on the network architecture and technology, and thus the cost structure of the incumbent telephone companies. As such, it permits the incumbent telephone companies to export their cost structure to their competitors and undermines the massive investment in modern broadband networks by competitive carriers.

Global Crossing believes it is important for the Commission to recognize in this proceeding the enormous investment in advanced telecommunications networks over the past five years. By the Commission's own acknowledgement the policies adopted in this proceeding will not take full effect for at least five years.[3] By that time, the industry will be radically different[4] and the nature of networking will look nothing like it does today.[5]

The future is digital. The future is IP. The future is packets, not minutes. The Commission must not only conclude that "a minute is a minute." It must also conclude that "a packet is a packet." Moreover, the Commission must allow all packets to be

---

[2] NPRM para. 37 at 15-16.
[3] When the CALLS structure expires and the policies adopted in this proceeding can be applied to interexchange traffic.
[4] Recent news reports that the Disney Corporation may buy AT&T Broadband demonstrate just how radical the changes may be.
[5] Peer-to-peer networks will have profound impacts on network architecture and technology.

exchanged without the distortion of past regulatory policies. As explained in greater detail below, Global Crossing is therefore advocating that the Commission:

- Affirmatively declare carriers' rights to route packetized voice traffic through existing and future, private and public, peering and transit arrangements.
- Prohibit any carrier from refusing to accept packetized voice traffic through existing and future, private and public, peering and transit arrangements.
- Allow carriers to negotiate the termination of packetized voice traffic through peering and transit arrangements without regard to the traditional access charge and reciprocal compensation regimes.
- Prohibit carriers from imposing usage-sensitive charges unless mutually agreed to by the parties.

III. The Commission Should not Utilize the Incumbent Carriers' network Architecture and Technology as the Basis for its Decision Making

Despite the advance in thinking put forth by both white papers prepared by Commission staff, they continue to focus on interconnection to the incumbent telephone company's legacy, narrowband, circuit-switched network. By doing this, they are perpetuating the dominance of the incumbent carriers, prolonging the existence of compensation mechanisms based on circuit-switched networks, and marginalizing the deployment of broadband infrastructure by new entrants.

The white papers support the notion that the incumbents' Central Office (the last point of switching) is the key demarcation point for traffic exchange.[6] Under the Commission's proposal, if other carriers reach the incumbents' Central Office, then usage sensitive intercarrier compensation charges are eliminated. This forces all other carriers to duplicate the network architecture of the incumbent carriers regardless of whether it is economically efficient for traffic exchange and allows the incumbent carriers to export their cost structure to their competitors.

The better approach would be to recognize the technology shift currently underway from TDM[7] to IP[8] and establish the key demarcation point for traffic exchange at a higher level in the network hierarchy.[9] This would recognize and support the continued broadband network deployment of so-called next-generation carriers. More importantly, establishing the key demarcation point higher up the network hierarchy provides a powerful economic incentive for carriers to move away from their legacy hierarchical networks and move towards the benefits of the non-hierarchical IP technologies, which are more supportive of broadband applications.

So long as incumbent carriers are permitted to extract revenue from their legacy network architecture they will continue to maintain it and they will continue to undermine the cost structure of their competitors. On the other hand, if policy makers at the Federal and State level cease their support for policies that continue to prop up the incumbent carriers' network architecture, the incumbent carriers would be forced to

---

[6] The NPRM does seek comment on the definition of "last point of switching". Global Crossing assumes this will be the Central Office. Regardless, the last point of switching is defined in relation to the incumbent carrier's networks.
[7] Time Division Multiplexing, the protocol used to support current circuit switched service.
[8] Internet Protocol, the most important of the protocols on which the Internet is based.
[9] Carriers would be free to establish additional points of interconnection either for traffic exchange or for access to unbundled network elements.

invest the capital necessary to upgrade their networks and streamline their distribution network. Of course these upgrades would reduce network operational and maintenance costs for the incumbent carriers, support lower interconnection rates, and support broadband applications. Similarly, by removing regulatory support for the incumbent carriers' network architecture the Commission will validate the investment strategy of competitive carriers and spur the continued deployment of broadband technologies by a host of competing providers.

IV. A Packet is a Packet

The Commission's goal of establishing a unified intercarrier compensation scheme recognizes that "a minute is a minute". As such, each minute should be treated equally. From the terminating carrier's perspective a "local" minute is no different from a "long distance" minute that is no different from a wireless minute.[10] For this reason, and those stated in the NPRM, the Commission should harmonize the various regimes.

Unfortunately, the Commission ignores more recent developments in telecommunications and continues to address yesterday's problem. Next-generation broadband networks have been and continue to be deployed utilizing mesh network architecture, IP technologies, advanced routers and optical switches. Traffic is rapidly moving from circuit-switched to packet switched. The nature of telecommunications is moving from point-to-point (traditional voice call) to point-to-multi-point (email, broadcast fax) or multi-point-to-point (conference calling, internet searches). Modeling intercarrier compensation on yesterday's distinctions and adapting it to the incumbents' legacy circuit-switched network is not a solution going-forward, particularly when the

[10] There may indeed be different cost characteristics between wireline and wireless carriers, but carriers do not experience different costs when terminating a wireless minute versus a wireline minutes.

Commission acknowledges that its proposals will not be fully implemented for at least five years at which time "minutes" will be supplanted by "packets" or some other metric.

Therefore, the Commission not only needs to conclude that "a minute is a minute", but it also needs to conclude that "a packet is a packet" and it should permit carriers to participate in new and creative intercarrier compensation arrangements for the exchange of all forms of "packet traffic" without the distortions of past regulatory policies pertaining to voice traffic.[11]

As noted by the Commission, Internet backbone providers "appear to be successfully negotiating interconnection agreements among themselves without any regulatory intervention".[12] Furthermore, these agreements are evolving as carriers and the market gain more experience with the Internet and packet data. Intercarrier compensation arrangements for the exchange of data traffic and the peering and transit arrangements established between competing internet backbone providers for the exchange of packets have been developed free of regulatory intervention and free of the policy distortions associated with voice services. Carriers should be encouraged to expand these arrangements to include packetized voice traffic as well. The expansion of these arrangements to include packetized voice through private negotiations offers the Commission its best hope of establishing a "fair" intercarrier compensation regime that accommodates the future of telecommunications and avoids many of the problems associated with the current regime as outlined in the NPRM. For this reason, the

[11] A sentiment shared by Ivan Seidenberg, President and Co-CEO of Verizon Communications Inc. as expressed in an interview with Telecommunications Reports published July 30, 2001, Vol. 67 No. 30 "I agree…that to the extent that there is gravity in the current circuit-switched network, there are rules, they need to be enforced, we need to follow them, and we will follow them. But as you migrate to the new technology – broadband – we don't need to transfer [the old rules]."
[12] NPRM para. 127 at 47.

Commission should seriously consider the merits of these arrangements and support their continuation and expansion.

Coincidentally enough, peering arrangements closely resemble the intercarrier compensation arrangements developed between adjacent, non-competing local exchange carriers ("LECs") prior to the Telecommunications Act of 1996.[13] The main characteristics of peering arrangements and intercarrier compensation arrangements between adjacent, non-competing LECs are (1) they are capacity-based, non-usage sensitive,[14] (2) they have a minimal number of interconnection points,[15] and (3) they do not distinguish traffic types.[16] It should not be a surprise that peering arrangements and arrangements between adjacent LECs are so similar. Both developed out of necessity rather than an attempt to gain a competitive advantage. For this reason alone, the Commission should seriously consider the merits of these arrangements.

Today, peering arrangements are not used to exchange voice traffic. Instead, for those carriers that have deployed voice over IP ("VoIP") technologies, they must segregate their voice traffic from the rest of the traffic. The data traffic is routed via peering and transit arrangements while the voice traffic is converted to TDM protocol and routed to the incumbent carriers via access arrangements or reciprocal compensation arrangements.

The requirement to separate out and route voice traffic in such a manner allows carriers that have not invested in IP technologies to export their less efficient cost

[13] These arrangements were renegotiated after the Telecommunications Act of 1996 when the Commission made it clear that they would otherwise be available to new entrants.
[14] Peering arrangements are established in units of capacity. Arrangements between adjacent LECs typically took the form of "bill and keep".
[15] Peering partners interconnect in as few as three points throughout the country. Adjacent LECs interconnect typically at only one or two points.

structure, clearly undermining the investment carriers such as Global Crossing have made in their networks. The Commission should not countenance this and instead should insist that all carriers utilize their IP interconnection arrangements for the exchange of all traffic including packetized voice traffic. This simple step will unleash tremendous effort amongst carriers to negotiate and establish comprehensive intercarrier compensation arrangements that will accommodate the future needs of carriers, not their past needs.

V. Simple Rules for Complex Times

The telecommunications industry has grown far more complex since the passage of the Telecommunications Act of 1996. The events of the past five years evidence the extreme challenge regulators and judges face in attempting to play "referee". To no one's surprise, the main source of friction in the industry relates to cost. As stated at the outset, intercarrier compensation is all about cost structure. The incumbents have their cost structure and the new entrants have an entirely different, often opposite, cost structure.[17] Reconciling these facts has proven extremely difficult for regulators and judges.

Exacerbating the problem is that the incumbents retain significant market power if not outright monopoly in telecommunications markets. Under these circumstances it is understandable why private negotiations fail to yield satisfactory results and why regulators and judges must be brought into the fray. The key to successful private negotiations is equal bargaining power and current circumstances do not afford equal bargaining power to the participants.

---

[16] Peering arrangements exchange all forms of Internet communications. Adjacent LECs exchanged local and intraLATA toll traffic.

[17] Whereas incumbent carriers' networks are dependent upon multiple switching points with short transport routes, new entrants typically employ fewer switches with longer transport routes.

The history of the industry has shown that where parties have roughly equal bargaining power they are able to privately negotiate satisfactory arrangements. Adjacent LECs negotiated mutually satisfactory intercarrier compensation arrangements. Competing long distance providers negotiate intercarrier arrangements. Internet backbone providers continue to negotiate peering and transit arrangements to the mutual satisfaction of parties.

These intercarrier compensation arrangements were freely negotiated without government interference or regulatory distortion. As such, these arrangements constitute the best evidence yet of what intercarrier compensation would look like in an effectively competitive telecommunications market. If the Commission examines the arrangements developed by adjacent LECs and internet backbone providers it will find that they are (1) non-usage sensitive, and (2) require few points of interconnection.

Non-Usage Sensitive

It is widely acknowledged and understood that costs in telecommunications networks are incurred on a capacity basis rather than a usage basis.[18] Telecommunications engineers engineer the network to accommodate capacity increments, not usage increments. Intercarrier exchange of traffic follows the same principle as network construction and should be similarly priced.

Such capacity-based pricing has been used in the past by the Commission[19] and more recently permitted by State Public Utility Commissions.[20] Overseas, regulators are

[18] See, e.g., Access Charge Reform, CC Docket No. 96-262, Fifth Report and Order and Further Notice of Proposed Rulemaking, 14 FCC rcd 14221, 14328-30, paras. 211-216 (1999).
[19] Just prior to the imposition of the federal access charge regime, an interim plan imposed access charges on long distance carriers based on capacity used.
[20] See, Connecticut Docket 94-10-02 Decision, September 22, 1995, p. 63; Massachusetts Docket No. D.P.U. 96-73/74, 96-75, 96-80/81, 96-83, 96-94 – Phase 4, Decision, December 4, 1996, pp. 65-66; WUTC

supporting the development of flat-rate interconnection arrangements for the origination of Internet traffic.[21] Where telecommunications markets can be said to be truly competitive capacity-based pricing is the model for intercarrier compensation.[22] The adoption of capacity-based pricing for intercarrier compensation alone would go a long ways towards rationalizing existing inter-carrier compensation arrangements and would allow carriers greater flexibility in the retail market.

Few Points of Interconnection

Where intercarrier compensation arrangements have been successfully negotiated between parties of roughly equal bargaining power, the parties typically select very few points of interconnection. Moreover, each party bears its own cost of reaching that point of interconnection. In the case of adjacent LECs, a single meet point arrangement was established. Often times the physical interconnection point would reside in one LEC's Central Office, but the costs would be shared such that it was virtually at a mid-point between the two carriers. In the case of Internet backbone providers, interconnection points are established at either public or private peering points and each carrier bears its own cost of reaching the peering point.

There are two paths the Commission could pursue in this docket. One is to develop detailed intercarrier compensation rules based on past experience and its best guess about the future direction of the industry. The other path, and the one advocated by

---

v. US West, Docket No. UT-941464, et. al., Order, October 31, 1995. See also, New York Case 94-5-0095.

[21] In the United Kingdom, British Telecommunications is required to offer other operators an unmetered interconnection arrangement for the origination of Internet traffic. See, Determination Relating to a Dispute Between British Telecommunications and Worldcom Concerning the Provision of a Flat Rate Internet Access Call Origination Product (FRIACO), February 15, 2001. Similarly, German regulators ordered Deutsche Telekom AG to offer flat rate Internet origination to competitors. See, November 16, 2000 Press Release by the Regulatory Authority for Telecommunications and Post. Other European countries are considering similar arrangements as well.

Global Crossing, is for the Commission to establish certain principles under which the industry itself can negotiate its requirements for efficient traffic exchange. Global Crossing believes at this stage of industry transition a negotiated solution is preferred over a regulatory decision. Global Crossing recognizes, however, that fair negotiations are not possible absent some Commission direction and urges the Commission to:

- **Affirmatively declare carriers' rights to route packetized voice traffic through existing and future, private and public, peering and transit arrangements.** This would recognize that "a packet is a packet", free the future of telecommunications from the regulatory distortions of the past, and acknowledge the enormous investment by competitive carriers in the nation's telecommunications infrastructure.
- **Prohibit any carrier from refusing to accept packetized voice traffic through existing and future, private and public, peering and transit arrangements.** This would ensure that carriers are not permitted to utilize their dominant position in the market to refuse interconnection or export the cost structure of their legacy networks onto their competitors.
- **Allow carriers to negotiate the termination of packetized voice traffic through peering and transit arrangements without regard to the traditional access charge and reciprocal compensation regimes.** This would allow carriers to develop innovative intercarrier compensation arrangements based upon mutual need and put an end to the regulatory arbitrage about which the Commission is so concerned.

[22] As is the case with Internet backbone providers.

- **Prohibit carriers from imposing usage-sensitive charges unless mutually agreed to by the parties.** This would recognize that network costs are capacity driven, not usage driven, and therefore would more closely align interconnection prices with true costs.

VI. Conclusion

The five year planning horizon of this docket illustrates the inability of the Commission to keep pace with rapidly changing telecommunications technologies and markets. Rules adopted today will have little relevance in five years. Global Crossing urges the Commission to adopt simple rules in these complex times that (1) will allow carriers to better manage and control their cost structure, (2) will facilitate continued progress towards fully competitive telecommunications markets, and (3) will support continued deployment of broadband technologies by a host of competing carriers. By freeing the carriers from past regulatory constraints and allowing them to utilize existing and future peering and transit arrangements, the Commission can facilitate the fair negotiation of intercarrier compensation arrangements suitable to the modern era of telecommunications.

Respectfully submitted,

GLOBAL CROSSING LTD.

By: _____

Paul Kouroupas
Senior Counsel
Worldwide Regulatory and Industry Affairs
Global Crossing Ltd.
7 Giralda Farms
Madison, New Jersey 07940
(973) 410-8593

August 21, 2001